PB86-224912

Superfund Record of Decision (EPA Region 5) New Brighton/Arden Hills/St. Anthony Site Minnesota (Alternate Water Supply), June 1986

(U.S.) Environmental Protection Agency
Washington, DC

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U.S. Department of Commerce
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EPA/ROD/R05-86/033
June 1986

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EPA

Superfund Record of Decision:

New Brighton/Arden Hills/ St. Anthony, MN (Alternate Water Supply)

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16. ABSTRACT

The New Brighton/Arden Hills/St. Anthony site is located approximately two miles north of the Twin Cities of Minneapolis/St. Paul, Minnesota, and is one of several communities in the area which obtains its municipal water supplies entirely from ground water resources. In June 1981, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Health (MDH) detected organic solvent contamination in the ground water used for municipal drinking water in New Brighton. Prior to these findings, the City of New Brighton had constructed and operated a total of nine municipal wells. From 1982 to 1984 the City shut down six wells (1 to 6), deepened two municipal wells (8 and 9) to the Mt. Simon-Hinckley aquifer and constructed three new wells (10, 11 and 12). These new wells were also finished in the Mt. Simon-Hinckley aquifer. Of the original municipal wells completed in the Prairie du Chien-Jordan aquifer, only well 7 presently shows minimal contamination.

During this same period, several Initial Remedial Measures (IRMs) were implemented at the site. In 1983, granular activated carbon filters were installed on two of New Brighton's wells (5 and 6) to meet peak summertime demands. In addition, pipeline connections to New Brighton's and Arden Hills' water mains were made for several private well users whose wells had excessive levels of contamination. Finally in 1984, the City of St. Anthony, which is immediately south of New Brighton, received a temporary water

(See Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS		
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision New Brighton/Arden Hills/St. Anthony, MN (Alternate Water Supply) Contaminated Media: gw Key contaminants: trichloroethylene (TCE), tetrachloroethylene (PCE), VOCs, solvents		
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EPA/ROD/R05-86/033
New Brighton/Arden Hills/St. Anthony, MN
(Alternate Water Supply)

16. ABSTRACT (continued)

connection to the City of Roseville. This State-lead IRM was necessary because the City of St. Anthony was experiencing water shortages due to the contamination and subsequent closure of one of their three Prairie du Chien-Jordan aquifer municipal wells. Contamination is now being detected in the remaining two municipal wells and a Phased Feasibility Study (PFS) is currently being conducted for the City's water supply.

The selected remedial action for this site includes the construction of a new well into the Mt. Simon-Hinckley aquifer system to replace New Brighton well 7. Total capital cost for the selected remedial alternative is estimated to be $600,500 with O&M costs approximately $22,820 per year. MPCA is continuing its comprehensive remedial investigation/feasibility study (RI/FS) for the site. A preliminary RI characterizing the site, major migration pathways, and preliminary identification of significant sources has already been completed. MPCA is planning to complete the remaining tasks of the comprehensive RI/FS in 1987 in order to evaluate potential final remedial action(s).

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Record of Decision
Remedial Alternative Selection
Operable Unit for Provision of
Alternate Water Supply

SITE: New Brighton/Arden Hills/St. Anthony
New Brighton, Minnesota

DOCUMENTS REVIEWED

The following documents describing the analysis of the cost effectiveness of the remedial action alternatives for the New Brighton/Arden Hills/St. Anthony site have been reviewed:

- Phased Feasibility Study for Alternative Water Supply, New Brighton Well 7, New Brighton, Minnesota, Camp Dresser and McKee, May 5, 1986
- Summary of Remedial Alternative Selection
- Responsiveness Summary

DESCRIPTION OF SELECTED REMEDY

- Construct a new well into the Mt. Simon-Hinckley aquifer system to replace New Brighton Well 7

DECLARATIONS

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and the National Contingency Plan (40 CFR Part 300), I have determined that construction of a new well into the Mt. Simon-Hinckley aquifer system is a cost-effective interim remedial action (operable unit) and provides adequate protection of public health, welfare, and the environment. The State of Minnesota has been consulted and concurs with the approved remedy. The action will require future operation and maintenance activities to assure the continued effectiveness of the remedy. These activities will be considered part of the approved action and eligible for Trust Fund monies for a period not to exceed 1 year.

It has also been determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

The State of Minnesota, through the Minnesota Pollution Control Agency (MPCA), is continuing its comprehensive Remedial Investigation/Feasibility Study (RI/FS) for the entire New Brighton/Arden Hills/St. Anthony study area through a cooperative agreement with the U.S. Environmental Protection Agency.

MPCA has already completed a preliminary remedial investigation (RI) characterizing the site, major migration pathways, and preliminary identification of significant sources. MPCA is planning to complete the remaining tasks of the comprehensive RI/FS in 1986-87 in order to evaluate potential final remedial actions. If additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

June 30th, 1986
Date

Valdas V. Adamkus
Regional Administrator
United States Environmental Protection Agency, Region V

Summary of Remedial Alternative Selection
New Brighton Well 7

SITE LOCATION AND DESCRIPTION

The New Brighton/Arden Hills/St. Anthony Superfund National Priorities List site is located immediately north of the Twin Cities of Minneapolis/St. Paul, Minnesota. This "site" includes the majority of the New Brighton Quadrangle, which includes parts of Anoka, Hennepin, and Ramsey counties (Fig. 1).

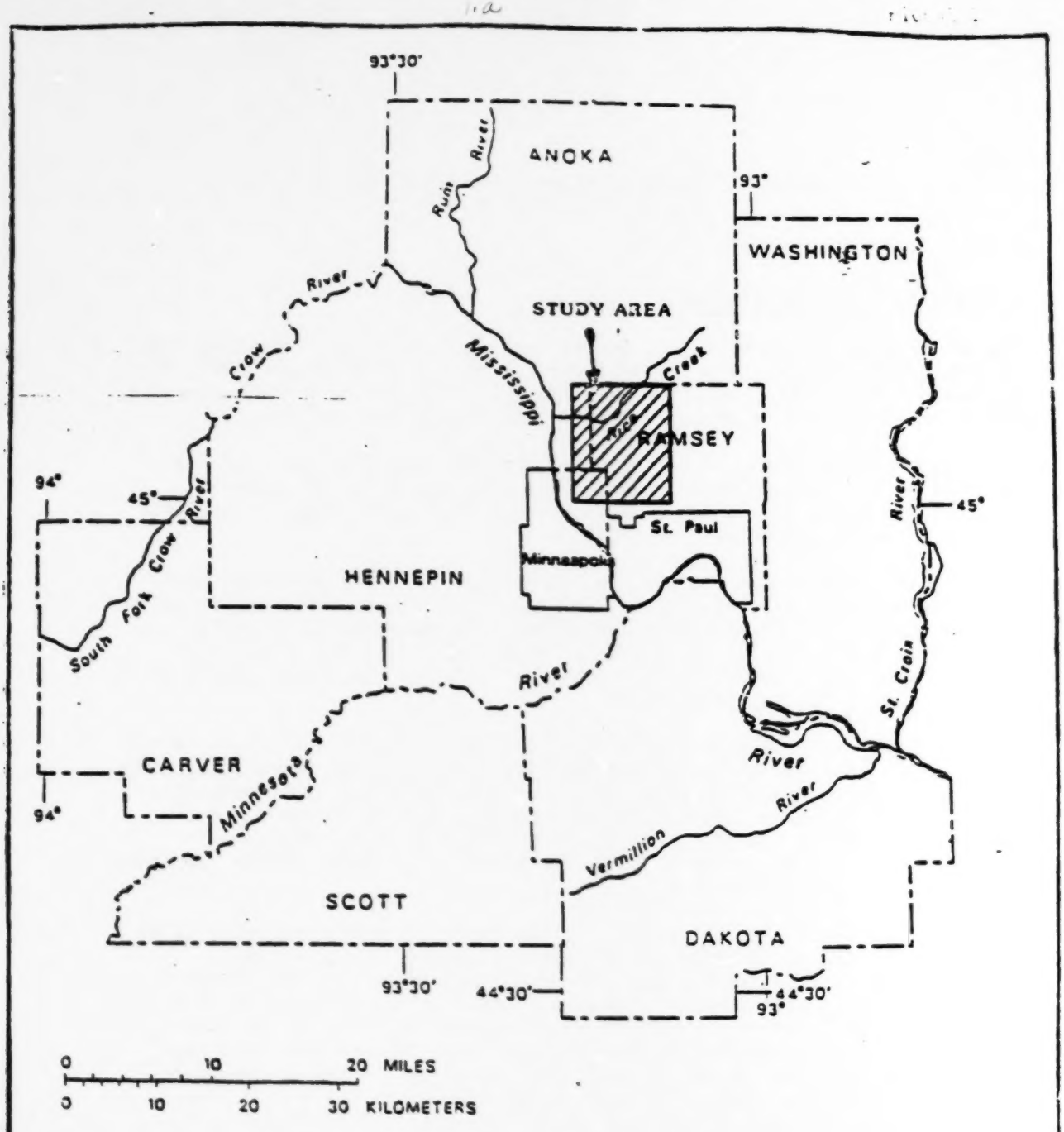
The City of New Brighton is located approximately two miles north of the Twin Cities of Minneapolis/St. Paul, Minnesota, and is one of several communities in the area which obtains its municipal water supplies entirely from groundwater resources (Fig. 2).

The City of New Brighton obtains its water supply from six municipal wells (well numbers 7, 8, 9, 10, 11, and 12)(Fig. 3). Three of these wells (well numbers 10, 11, and 12) are main use wells. The remaining three wells (well numbers 7,8, and 9) are summer or peak use wells. The groundwater from the wells is treated (chlorination, fluoridation and iron removal) at the wellheads prior to distribution.

There are two major bedrock aquifers capable of large well yields within the study area. These aquifers are the Prairie du Chien-Jordan and the Mt. Simon-Hinckley systems (Fig. 4). In addition, at some locations the Platteville-St. Peter Sandstone and the Franconia-Ironton-Galesville formations are reported to provide low to moderate yields of groundwater. However, in large areas of the New Brighton area, the Platteville and St. Peter Sandstone aquifers have been eroded away.

The most significant bedrock aquifer in the study area with regard to water supply is the Prairie du Chien-Jordan aquifer system. Approximately 75-80% of all Twin Cities metropolitan area communities that obtain their water from groundwater supplies, receive those supplies from the Prairie du Chien-Jordan aquifer system. The chief aquifer existing in the undifferentiated glacial deposits is the Hillside Sand. Within the study area, the Hillside Sand aquifer has historically served as a major aquifer for residential and light industrial use. Overlying the Hillside Sand (over most of the study area) is the Twin Cities Formation. This formation is a complex till unit consisting of, in order of abundance, sand, silt, and clay mixed with gravel and occasional boulders. The Twin Cities Formation is overlain by several types of surficial deposits including various aeolian, fluvial and lacustrine deposits.

The Twin Cities Formation, where present, generally serves as an aquitard that limits vertical migration of water from the surficial deposits to the underlying Hillside Sand. However, the Hillside Sand outcrops at several locations in the New Brighton area, allowing direct recharge from the ground surface. The most critical outcrop area is located at the Arsenal Kame located at the Twin Cities Army Ammunition Plant (TCAAP). As the Platteville and St. Peter Sandstone aquifers have been eroded away over much of the study area, the Hillside Sand is in direct contact with the underlying bedrock (Prairie du Chien and/or Jordan formations).



SOURCE:
CAMP DRESSER & McKEE
NEW BRIGHTON-ARDEN HILLS
PHASE I MULTI-POINT SOURCE
REMEDIAL INVESTIGATION
MAY, 1985

N

NEW BRIGHTON/ARDEN HILLS
PFS NEW BRIGHTON WELL 7

SITE VICINITY MAP

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FIGURE 2

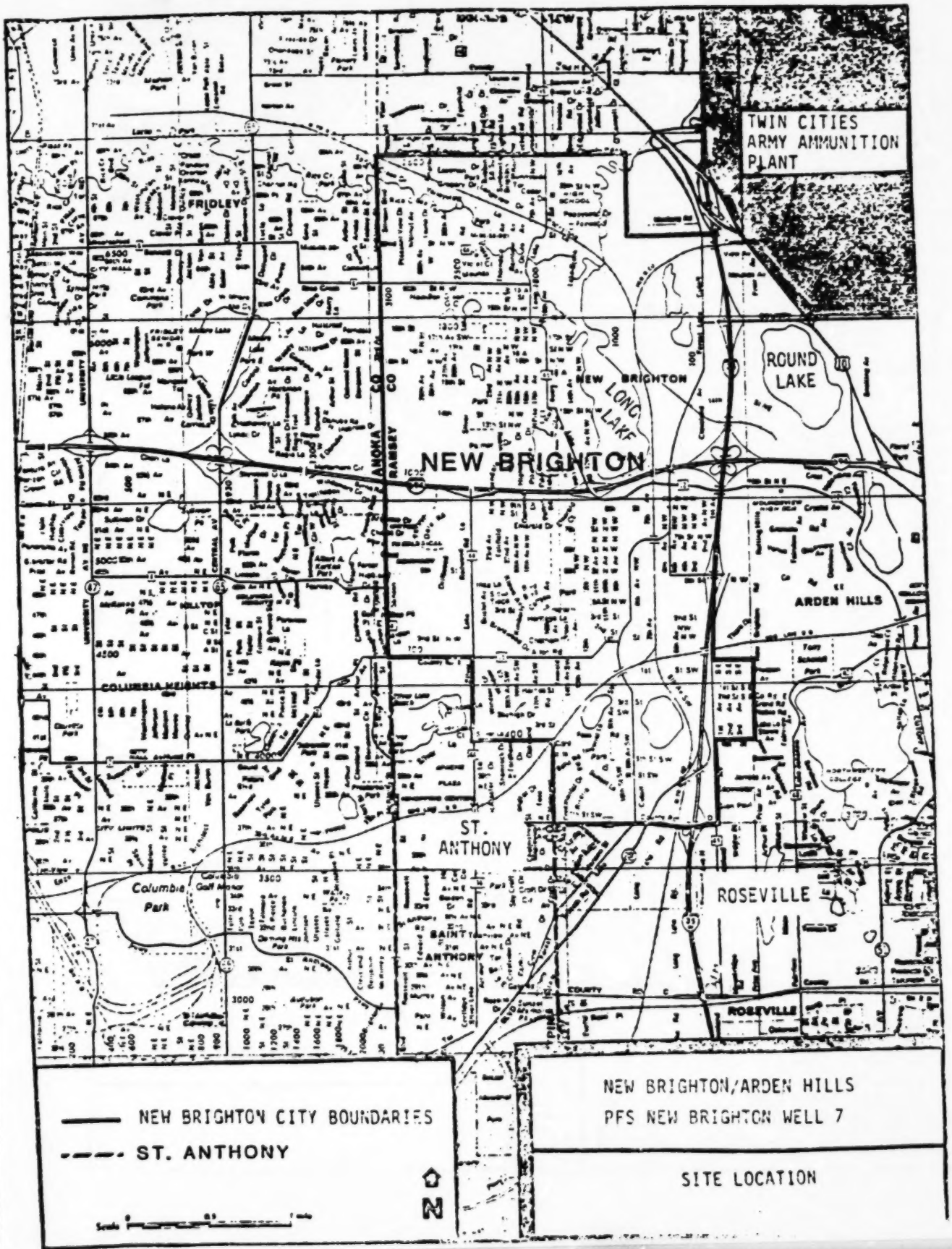

FIGURE 3

TWIN CITIES ARMY AMMUNITION PLANT
NB #12
NEW BRIGHTON
NB # 8 DEEPENED
NB #3,4 SHUTDOWN
NB #9 DEEPENED
NB #5 SHUTDOWN
NB #6 SHUTDOWN
NB #11
NB #1,2 ABANDONED
NB #7
STA #5
NB #10
ST. ANTHONY
STA #4
STA #3 SHUTDOWN
ROSEVILLE
ROUND LAKE
LONG LAKE
FRIDLEY
COLUMBIA HEIGHTS
Columbia Golf Park
ARDEN HILLS
O PRAIRIE du CHIEN-JORDAN WELLS
MT. SIMON-HINCKLEY WELLS
NB-NEW BRIGHTON WELLS
STA-ST. ANTHONY WELLS
PROPOSED LOCATION OF NEW NB WELL
NEW BRIGHTON/ARDEN HILLS
PFS NEW BRIGHTON WELL 7
WELL LOCATION MAP

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1-d

FIGURE 4

System	Rock Unit	Approx. thickness (in feet)	General Description	Graphic Column	Water-Bearing Characteristics
Quaternary	Undifferentiated glacial deposits	0-500			
Ordovician	Decorah Shale	90			
	Platteville Formation	to 35			
	Glenwood Formation	to 5			Confining bed
	St. Peter Sandstone	150			Aquifer, moderate yields
	Prairie du Chien Group: Shakopee Formation	50			Confining bed
	Prairie du Chien Group: Oneota Dolomite	100			Aquifer, high yields from fractures in dolomite and from joints in sandstone; principal aquifer of the Twin City Basin
Cambrian	Jordan Sandstone	90			
	St. Lawrence Formation	50			Confining unit
	Franconia Formation	155			Aquifer, low yields
					Confining bed
	Ironton Sandstone	30			Aquifer, moderate to high yields
	Galesville Sandstone	35			
	Eau Claire Formation	to 130			Confining bed
	Mt. Simon Sandstone	160			Aquifer, moderate to high yields; second most important aquifer of Twin City Basin
Keweenawan	Hinckley Sandstone	75			
	Fond du Lac Formation and older sedimentary rocks	to 4,000			Confining bed
	Metamorphic and Igneous Rocks	to 20,000			

SOURCE: Hoberg, R. K., "Ground-Water Resources in Minnesota": In Sims, P. K. and G. B. Morey, Geology of Minnesota: A Centennial Volume, 1972

NEW BRIGHTON/ARDEN HILLS
PFS NEW BRIGHTON WELL 7

Generalized stratigraphy and water bearing characteristics of formations in NEW BRIGHTON area

SITE HISTORY

In June 1981, the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Health (MDH) detected organic solvent contamination in the groundwater used for municipal drinking water in New Brighton. Prior to these findings the City of New Brighton had constructed and operated a total of nine municipal wells. Each of these wells was originally completed in the Prairie du Chien-Jordan aquifer system.

From 1982 to 1984 the City shut down six wells (1 to 6), deepened two municipal wells (8 and 9) to the Mt. Simon-Hinckley aquifer and constructed three new wells (10, 11 and 12). These new wells were also finished in the Mt. Simon-Hinckley aquifer. Of the original municipal wells completed in the Prairie du Chien-Jordan aquifer, only well 7 presently shows minimal contamination.

During this same period, under the Superfund program, several Initial Remedial Measures (IRMs) were implemented at the site. In 1983, the U.S. EPA, as an IRM, installed granular activated carbon filters on two of New Brighton's wells (5 and 6) to meet peak summertime demands.

Also in 1983, pipeline connections to New Brighton's and Arden Hills' water mains were made for several private well users whose wells had excessive levels of contamination. This IRM was a state-lead project.

Lastly in 1984, the City of St. Anthony, which is immediately south of New Brighton, received a temporary water connection to the City of Roseville. This state-lead IRM was necessary because the City of Anthony was experiencing water shortages due to the contamination and subsequent closure of one of their three Prairie du Chien-Jordan aquifer municipal wells. Contamination is now being detected in the remaining two municipal wells and a Phased Feasibility Study (PFS) is currently being conducted for the City's water supply.

In 1983, the MPCA and U.S. EPA entered into a state-lead cooperative agreement to conduct a remedial investigation (RI) of this site to determine the extent of the contamination and to determine the source(s) of the contamination.

Preliminary results from this study indicate that the groundwater flow in the Prairie du Chien-Jordan aquifer is toward the southwest, while the Hillside Sand aquifer generally flows in a west-southwest direction. Study results also indicate that contamination in the New Brighton area is comprised of separate eastern and western plumes, originating in the vicinity of the TCAAP, that are impacting New Brighton's eastern and western well fields.

Potential sites that may be contributing to the observed contamination were assessed and it has been concluded that four significant source areas of contamination may exist within the study area. These general source areas are located either on the TCAAP or in the vicinity of the TCAAP and are identified as follows:

1. An industrial area along Old Highway 8, north of Interstate 694.

2. A commercial/industrial area to the north of Rush Lake.

3. Sites located within the Twin Cities Army Ammunition Plant (TCAAP) that lie above the Twin Cities till.

4. Sites located on the TCAAP that are located within the kame deposit (below which no till is present).

Major contaminants that have been identified in the groundwater system of the study area are: trichloroethylene (TCE); 1,1-dichloroethylene; cis 1,2-dichloroethylene; and 1,1,1-trichloroethane. Other contaminants include; 1,1-dichloroethane (1,1-DCA); trans 1,2-dichloroethylene; chloroform; 1,2-dichloroethane; 1,1,2-trichloroethane; and 1,1,2,2-tetrachloroethylene. Preliminary estimates of the extent of contamination in the Hillside Sand and Prairie du Chien-Jordan aquifers are shown in figures 5 and 6, respectively. Since TCE was the most prevalent volatile organic compound (VOC) found and generally had the highest levels, it was used as the indicator chemical for these studies.

CURRENT SITE STATUS

Contamination by VOCs has caused the City of New Brighton to shut down numerous municipal wells thereby reducing total pumping capacity. Because of this reduction, New Brighton faces the possibility of water shortages during emergencies and peak use periods which would require the use of contaminated wells.

Prior to the discovery of groundwater contamination, New Brighton had a total pumping capacity of approximately 8,250 gallons per minute (gpm) from their Prairie du Chien-Jordan wells. The total capacity of their Mt. Simon-Hinckley wells is approximately 4,400 gpm. Well 7 which shows minimal contamination, is still used in periods of need and can supply another 1,100 gpm.

Three VOCs have been found in well 7 (TCE, 1,1-DCA and trans 1,2-dichloroethylene). TCE is a suspected carcinogen. At present, the levels of contaminants in well 7 water are below the 10^{-6} cancer risk level (see table 1). However, based on the contamination level data available from other New Brighton wells, the levels of contamination in any given well can change rapidly over a relatively short period of time. Some specific examples of this occurring are presented in Table 2.

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3.a

FIGURE 5

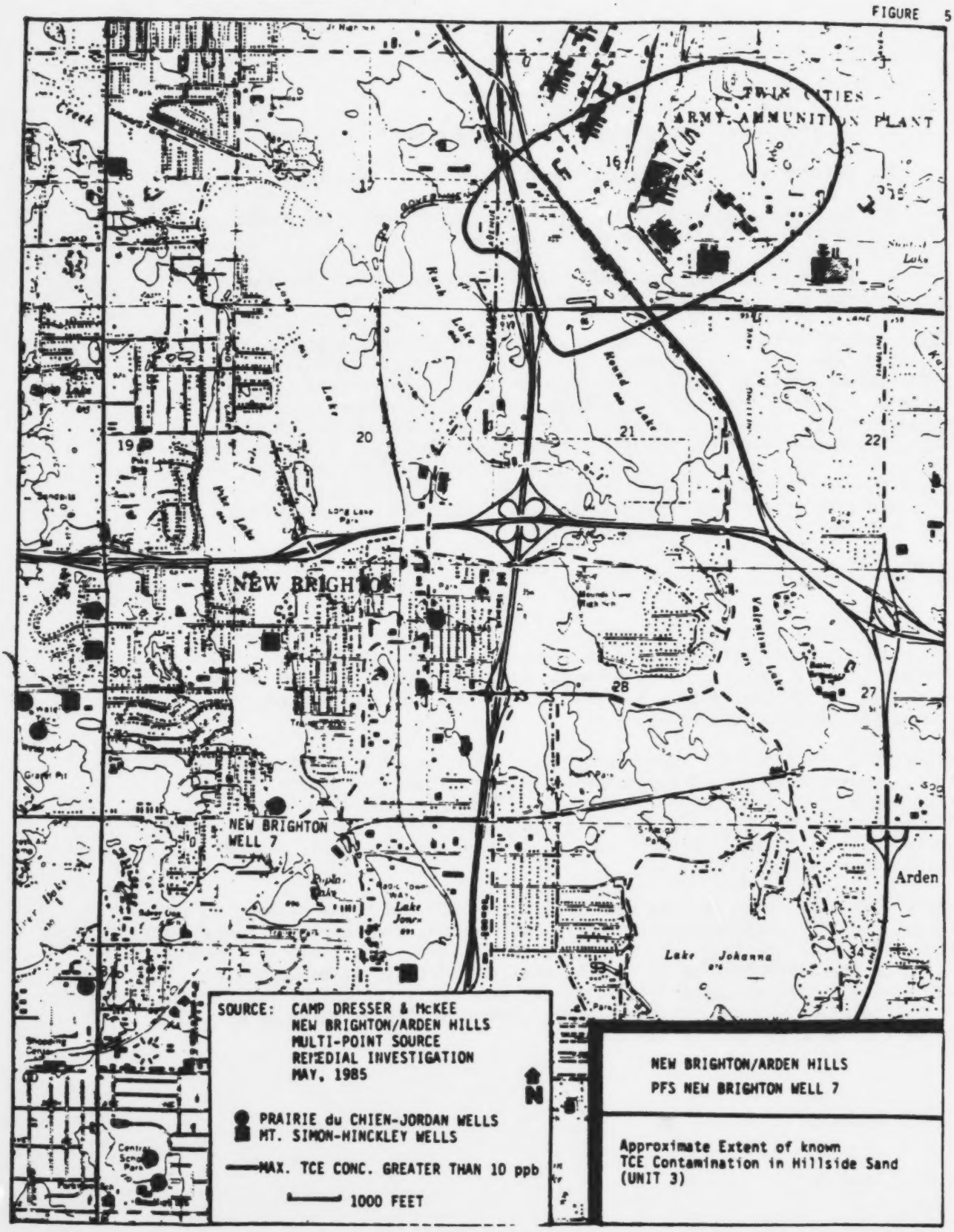
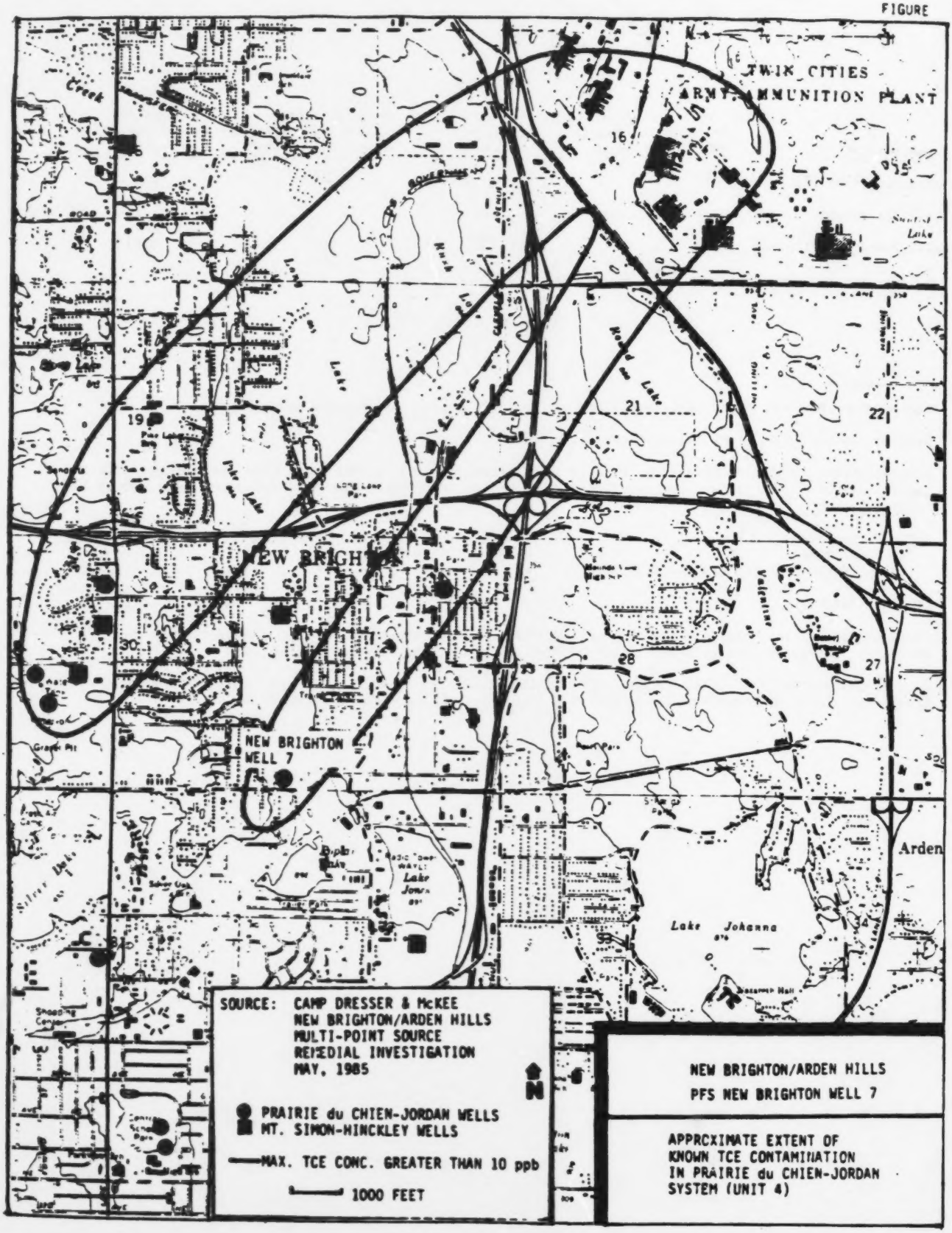


FIGURE 6


TWIN CITIES
ARMY AMMUNITION PLANT
NEW BRIGHTON
NEW BRIGHTON
WELL 7
Arden
Lake Johanna
16
19
21
22
28
27
30
SOURCE: CAMP DRESSER & McKEE
NEW BRIGHTON/ARDEN HILLS
MULTI-POINT SOURCE
REMEDIAL INVESTIGATION
MAY, 1985
N
PRAIRIE du CHIEN-JORDAN WELLS
MT. SIMON-HINCKLEY WELLS
MAX. TCE CONC. GREATER THAN 10 ppb
1000 FEET
NEW BRIGHTON/ARDEN HILLS
PFS NEW BRIGHTON WELL 7
APPROXIMATE EXTENT OF
KNOWN TCE CONTAMINATION
IN PRAIRIE du CHIEN-JORDAN
SYSTEM (UNIT 4)

3.C

TABLE 1

U.S. EPA SUGGESTED CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

Contaminant	Proposed RMCLS[a/]	Upper Limit Proposed MCLs[f/]	Lifetime Cancer Risks	Office of Drinking Water Longer-Term/Lifetime Health Advisories[g/]	Maximum Contaminant Levels-Well 7 ppb
trichloroethylene (TCE)	0[b/]	5	2.8[c/]	75[g/]	2.0
1,1-dichloroethane	---	---	---	---	0.86
trans-1,2-dichloroethylene	70	---	NC[e/]	1,000[d/] 350 70	0.53

a/ (Recommended Maximum Contaminant Level) are health goals and not enforceable standards.

b/ Federal Register 40CFR Part 141, November 13, 1985

c/ Concentration in drinking water resulting in a projected upper 95 percent confidence limit excess lifetime cancer risk of 10^{-6}. (Values are calculated by the USEPA Carcinogen Assessment Group and published in 49 Federal Register 114:24340).

d/ 1,000 - Long-term (1-2 years) child
350 - Lifetime
70 - Lifetime (source contribution factor)

e/ Not considered

f/ (Maximum Contaminant Level) 40 CFR, National Primary Drinking Water Regulations; Synthetics Organic chemicals; Inorganic Chemicals and Microorganisms, Proposed Rule; November 13-14, 1985

g/ U. S. Environmental Protection Agency (USEPA). 1984a. Health Effects Assessment for Trichloroethylene Environmental Criteria and Assessment Office. Cincinnati, Ohio. EPA 5540/1-86-046.

TABLE 2

CHANGES IN CONTAMINATION LEVELS[a/]

Well No.	Dates of Changes		Change in Contamination Level[b/]	
	From	To	From	To
2	11/04/81	11/18/81	0.9	26.3
2	06/09/82	08/11/82	3.4	25.4
3	07/13/81	08/04/81	17.8	112.8
3	06/30/82	08/11/82	81.6	331.3
4	08/25/82	10/06/82	1.4	13.7
5	07/15/81	07/22/81	84.3	9.7
5	08/11/83	05/31/84	78.7	142.5
6	09/23/82	10/20/82	8.0	29.3
8	08/28/81	11/03/82	231.6	1.2
9	10/07/81	08/25/82	75.7	1.4

---

a/ Contaminant level data provided from MPCA files.

b/ Total VOCs in parts per billion.

This data indicates the uncertainty of attempting to predict contaminant levels in well 7 at this time. Therefore, because of the need for the supply of water from this well for emergency and standby use, the uncertainty of what the levels of contamination will ultimately be in well 7 under continued use, and the long lead times needed for implementation of some of the alternatives being considered, it was decided by the EPA and MPCA to investigate alternative supply and treatment options for well 7, prior to contamination levels rising above the 10^{-6} criteria levels.

ENFORCEMENT - See Attachment 1

ALTERNATIVES EVALUATION

The major objective of the PFS conducted for New Brighton well 7 was to evaluate remedial alternatives using a cost-effective approach consistent with the goals and objectives of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR 300.68, outlines the procedures and criteria to be used in selecting the cost-effective remedial alternative that effectively mitigates and minimizes threats to, and provides adequate protection of, public health and welfare and the environment.

Response actions may be conducted as an operable unit which is a discrete response measure that may begin before selection of an appropriate final remedial action. This is consistent with the practice of phasing remedial actions at sites that present complex cleanup problems. The primary objective of the New Brighton well 7 operable unit is to protect public health by providing a reliable supply of safe, potable water to consumers currently dependent on New Brighton well 7.

Numerous alternatives were identified and evaluated for potential as an operable unit at New Brighton well 7 in accordance with the NCP and developmental EPA guidance for providing alternate drinking water supplies. The alternatives were grouped into three general categories: 1) no-action, 2) discontinue use of well 7, and 3) continue to pump well 7. The alternatives were screened and evaluated based on their ability to protect public health, reliability, environmental impacts, technical feasibility, speed of implementation, complexity, and cost. A summary of the initial screening is presented in Table 3.

During the initial screening stage, the no-action alternative was eliminated from further consideration. The decision was based on the fact that the levels of contamination in any given well in the site area can change rapidly over a relatively short period of time (Table 2). Because of the uncertainty of what the levels of contamination will ultimately be in well 7 under continued use, and the need for a supply of water for emergency and standby use, the no-action alternative was not considered to be reliable over the long term.

TABLE 3

SUMMARY OF INITIAL SCREENING OF ALTERNATIVES

	TECHNICAL ASPECTS			EFFECTS OF ALTERNATIVE		RELATIVE COST	RESULT OF INITIAL SCREENING
ALTERNATIVE	FEASIBILITY	TIME REQUIRED TO IMPLEMENT	RELIABILITY	ENVIRONMENTAL IMPACT[a/b/]	ABILITY TO PROTECT PUBLIC HEALTH		
No Action	—	Immediate	Short term moderate Long term poor	None	Short term acceptable Long term poor	None	Eliminated - Strong indication contaminant levels will increase above acceptable levels with time
In Home Water Treatment	Low	1 Month	Poor	None	Poor to Moderate (unproven)	Moderate to High	Eliminated - Unreliable and impractical
Bottled Water for Potable Use	Low	1 Month	Poor	None	Poor	High	Eliminated - Expensive and unreliable for long-term use, still allows exposure to contaminants through non-potable use
Mixing Well 7 with Non-Contaminated Supply	High	1 Month	Poor	Temporary and Minor During Construction	Poor	Moderate	Eliminated - Unreliable over long term since maximum concentrations unknown and availability of non-contaminated water for mixing is limited
Conservation	Low	Immediate	Poor	None	Poor	None	Eliminated - Impractical as a stand-alone alternative, may be insufficient to meet emergency demand
Develop New Well into Mt. Simon-Hinckley Aquifer	High	12 to 18 Months	Good	Temporary and Minor During Drilling	Good	Moderate to High	Consider further
Develop New Well into Prairie du Chien-Aquifer	High	10 to 12 Months	Moderate	Temporary and Minor During Construction	Short term acceptable Long term unknown	High	Eliminated - since contamination plume dimensions unknown; Jordan locations may be far from New Brighton; Aquifer susceptible to contamination; Well construction, pump station, and piping costs high.
Additional Storage	Moderate	1-2 Years	Good	Temporary and Minor During Construction	Good	High	Eliminated - This alternative is the most expensive to implement of all the alternatives considered.

TABLE 3 (Continued)

SUMMARY OF INITIAL SCREENING OF ALTERNATIVES

ALTERNATIVE	TECHNICAL ASPECTS: FEASIBILITY	TECHNICAL ASPECTS: TIME REQUIRED TO IMPLEMENT	TECHNICAL ASPECTS: RELIABILITY	EFFECTS OF ALTERNATIVE: ENVIRONMENTAL IMPACT[a/b/]	EFFECTS OF ALTERNATIVE: ABILITY TO PROTECT PUBLIC HEALTH	RELATIVE COST	RESULT OF INITIAL SCREENING
Treat at Wellhead							
a. Air Stripping	Good	2-4 Months	Good	Temporary and Minor During Construction	Good	Moderate	Consider further
b. Carbon Adsorption	Good	2-4 Months	Good	Temporary and Minor During Construction	Good	Moderate to High	Consider further
c. Combination Stripping and Carbon Adsorption	Good	2-4 Months	Good	Temporary and Minor During Construction	Good	Moderate to high	Eliminated - additional costs for carbon unit not justified since only volatile organics are present and combination doesn't provide significant cost savings over the carbon adsorption alternative above
Utilize Adjacent Water Systems							
a. Minneapolis	Good	2-6 Months	Good	Temporary and Minor During Construction	Good	Moderate to High	Consider further
b. Roseville/ St. Paul	Good	2-6 Months	Good	Temporary and Minor During Construction	Good	Moderate to High	Consider further
c. St. Anthony	Poor	--	Poor	--	Poor at Present Time	--	Eliminated -- St. Anthony has limited capacity and two of their 3 wells have contamination problems at present time.
d. Fridley	Moderate	2-6 Months	Moderate	Temporary and Minor During Construction. Increased pumpage of Fridley's wells may induce movement of contaminant plume	Moderate	Moderate	Eliminated -- Fridley has sufficient supply at present time but may have to construct additional wells to meet future demands. Some of their wells show low levels of contamination
Deepen Well 7	Poor	6-10 Months	Good	Temporary and Minor During Construction.	Good	Moderate	Eliminated -- to meet MDH well code, completed well could not supply the estimated amount of water needed (900 gpm)

a/ None of the alternatives considered are designed to mitigate the contamination problem in the New Brighton area.

b/ This column refers to the environmental impact of the alternative if it is implemented.

Five of the original alternatives passed the initial screening and detailed studies were conducted. The five alternatives include:

- Construct a new well into the Mt. Simon-Hinckley aquifer;
- Connect to the Minneapolis system;
- Connect to the Roseville/St. Paul system;
- Treat at wellhead using an air stripper;
- Treat at wellhead using carbon adsorption.

These five alternatives were evaluated on their ability to protect public health, technical feasibility (a preliminary design was made), environmental impacts, institutional requirements, and costs assuming a 30-year project life. A summary of this second screening and evaluation is presented in Table 4.

Two of the five alternatives considered in detail ranked equally concerning technical feasibility, and ability to protect public health. The costs of these two alternatives were comparable at all three of the discount rates considered (5, 8 3/8, and 10 percent). These alternatives are to construct a new well into the Mt. Simon-Hinckley aquifer and to pump well 7 and treat with an air stripper. The other alternatives were considerably more costly to implement.

Alternative 1 -
Construct New Well Into The Mt. Simon-Hinckley Aquifer

This alternative utilizes the deeper uncontaminated Mt. Simon-Hinckley aquifer to meet the objectives of the operable unit. Due to contamination of the shallower aquifers in the New Brighton area, any replacement well would have to be finished in the Mt. Simon-Hinckley aquifer. This aquifer is tightly confined and not as prolific as the Prairie du Chien-Jordan system, but has sufficient capacity that a well should be able to supply the required amount of water. New Brighton already has five wells completed in this aquifer with well yields ranging from 800 to over 1,000 gallons per minute. To avoid excessive interference between wells, the new well should be located as far from any existing Mt. Simon-Hinckley wells as practicable. Taking this into consideration, a location has been proposed which will minimize interference between wells. This location will also only require installation of about 75 ft. of water main to reach a connection into the existing distribution system.

Alternative 2 -
Pump Water From Well 7 And Treat With Air Stripper

This alternative utilizes a packed tower air stripper to meet the objectives of the operable unit. Due to the uncertainty of what the levels of contamination will ultimately be in well 7 under continued use, the air stripper will

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TABLE 4 WATER SUPPLY ALTERNATIVES FOR NEW BRIGHTON WELL 7

Alternative	Cost ($1,000) Capital	Present Worth[a/] 5%	Present Worth[a/] 8 3/8%	Present Worth[a/] 10%	Public Health Concerns	Environmental Concerns	Technical Concerns	Community Response Concerns[b/]	Others
1. Construct new well to Mt. Simon-Hinckley aquifer	600.5	1,107	1,005	972	Reduce public health threat to less than 10^{-6} risk	Does not mitigate contamination problem	May only be relatively short-term remedy, may encounter contamination during drilling	Low resistance	Longest time to implement (2 to 4 times the other alternatives)
2. Connection to Minneapolis water system	261.8	3,506	2,560	2,257	Reduces public health threat to less than 10^{-6}	Does not mitigate contamination problem	Minneapolis may have insufficient supply in storage (24-hour supply maintained), water intake is susceptible to contamination	Moderate to high resistance	MDNR does not recommend for sole supply but for peaking and/or emergency use they do not see any problem. Highest O&M costs mainly due to purchase of water. Need 2000 to 2500 feet of pipeline.
3. Connection to Roseville/St. Paul water system	602.3	3,560	2,698	2,422	Reduces public health threat to less than 10^{-6} risk	Does not mitigate contamination problem	Connection would have to be made at the "end" of the New Brighton distribution system	Moderate resistance	Have to construct [illegible] of pipeline to transfer water to an appropriate connection point in the New Brighton system
4. Pump well 7 and threat with air stripper	266.2	1,215	989	916	Reduces public health threat to less than 10^{-6} risk	May cause the spread of contamination[c/]	Mixture of contaminants may change. Non-volatile contaminants may become prevalent making stripper ineffective	Moderate to high resistance	Noise reduction techniques will have to be used
5. Pump well 7 and treat with carbon adsorption	395.9	1,952	1,535	1,401	Reduces public health threat to less than 10^{-6} risk	Used carbon may be considered hazardous waste, may cause the spread of contamination[c/]	If contaminant levels increase significantly carbon replacement costs may be high	Moderate resistance	

a/ Includes capital, annual O&M and annualized equipment replacement costs.

b/ Each alternative was discussed with the New Brighton City Engineer to assess community response to the alternatives.

c/ These alternatives are not planned to mitigate the contamination problem, however pumping well 7 and treating the water may be utilized in the remediation effort.

5.a

be sized to achieve the high removal efficiencies required to remove VOCs found at the maximum concentrations observed in New Brighton's wells (300 ppb). Because of the relatively low levels of contaminants in well 7 water at the present time, and the high removal efficiencies achieved by air stripper systems (99 percent and higher if contamination reaches the 300 ppb level), there should be no problem in meeting all water quality standards and all air discharge guidelines (for exhaust gases from the air stripper).

Both of these alternatives are based on simple, proven technologies and can meet or exceed all applicable Federal and State drinking water standards. As was previously stated, these alternatives ranked equally in terms of technical feasibility, ability to protect public health, and costs. Neither of these alternatives are planned to mitigate the overall regional contamination problem at the site.

Each of these alternatives, however, has two important drawbacks which were taken into consideration during the selection of the recommended alternative.

o Construct a new well

  - If contamination is encountered during drilling through the Hillside Sand and Prairie du Chien-Jordan aquifers, then significant costs may be incurred in implementing the required Health and Safety and Quality Assurance Plans.

  - The Minnesota Department of Natural Resources' (MDNR) present policy is to discourage the use of the Mt. Simon-Hinckley aquifer by cities for meeting peak water demands during summer months. This policy is based on MDNR's concern that the Mt. Simon-Hinckley aquifer has a limited potential for and is sensitive to development and that it may not be a reliable source of water in the long run.

o Treat well 7 using an air stripper

  - There will most likely be strong community resistance to this alternative mainly because of the presence of well 7 within a residential neighborhood (noise and visual impacts) and concerns of residents being exposed to low levels of contamination in the effluent water and in the air discharged from the air stripper.

  - MPCA is concerned that if the pumping of well 7 continues, it may aggravate the present contaminant distribution problem in the Prairie du Chien-Jordan aquifer system.

Staff from EPA and MPCA and officials from the City of New Brighton conferred at several meetings to discuss the significant drawbacks of the two alternatives. The concern which had the most impact in determining which alternative to recommend was the MPCA concern regarding the currently unknown effects of continued pumping of well 7 on the contaminant distribution in the Prairie du Chien-Jordan aquifer. Based on these discussions, the agencies and the City concurred that the recommended alternative is to construct a new well into the Mt. Simon-Hinckley aquifer.

COMMUNITY RELATIONS

The Superfund activities at the New Brighton/Arden Hills/St. Anthony site have been followed closely and consistently by the local press. Interest in Superfund activities has been high, and news accounts of the activities have been responsible. Residents and locally elected officials have maintained a constant and serious interest in the Superfund activities.

Copies of the PFS were made available to the community on May 12, 1986. The Arden Hills Branch of the Ramsey County Public Library served as the information repository. The U.S. EPA issued a press release May 11, 1986, announcing the availability of the PFS, location of the repository, the May 12 - June 2, 1986 public comment period, and the May 12, 1986 public meeting at the Irondale High School in New Brighton, Minnesota.

The public meeting was attended by a small but interested group of residents and a few members of the media. Numerous State congressional and City officials were also present. At this meeting, the U.S. EPA presented results of the PFS, recommended construction of the new well as the preferred alternative, answered questions regarding the New Brighton/Arden Hills/St. Anthony site, and accepted public comments.

The Responsiveness Summary to the public comments is attached to this summary (see attachment 2).

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Both proposed alternatives are consistent with other Federal and State environmental laws.

Both proposed alternatives will supply drinking water that will attain or exceed applicable and relevant Federal and State public health standards. For this PFS, the criteria to meet or exceed are the proposed Maximum Concentration Levels or the 10^{-6} U.S. EPA Cancer Assessment Group (CAG) cancer risk factors, whichever are smaller, for the contaminants found in the water presently being pumped from well 7.

The MPCA (Division of Air Quality) regulates the discharge of contaminants to the atmosphere from air strippers. The Division evaluates each case individually, but has not adopted a set of rules to date. The accepted criterion is 1% of the threshold limit value (TLV) of a contaminant over an 8-hour period. This is determined by running the physical parameters of the stripper--stack height, diameter, water pumping rate, influent contaminant levels, distance to property lines, etc., through a model to determine if the proposed alternative will meet all Minnesota regulations. The exhaust gases created from the air stripper alternative may have an impact on ambient air quality. While the proposed parameters for an air stripper at well 7 were not run through a model, because of the relatively low levels of contaminants in well 7 water and therefore, in the exhaust air, there should not be a problem with meeting or exceeding all Minnesota guidelines for air discharges.

RECOMMENDED ALTERNATIVE

The National Oil and Hazardous Substances Contingency Plan (NCP) [40 CFR Part 300.68(i)] states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial measure which the agency determines is cost-effective (i.e., the lowest cost alternative that is technologically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment). Based on the evaluation of cost and effectiveness of each proposed alternative, the comments received from the public and the Minnesota Pollution Control Agency, and the State and Federal environmental requirements, Alternative 1 has been determined to be the cost-effective alternative.

The recommended alternative is considered an operable unit remedial action. The objective of this action is to provide those consumers currently dependent on New Brighton well 7 for drinking water with a reliable supply of safe, potable water until the final remedial measure(s) may be implemented. The RI/FS currently underway will examine appropriate final response action(s).

The recommended alternative provides for the construction of a new well into the Mt. Simon-Hinckley aquifer. Due to contamination of the shallower aquifers in the New Brighton area, any replacement well would have to be finished in the Mt. Simon-Hinckley aquifer. This aquifer is tightly confined and not as prolific as the Prairie du Chien-Jordan system, but has sufficient capacity to enable a well to supply the required amount of water. New Brighton already has five wells completed in this aquifer with well yields ranging from 800 to over 1,000 gallons per minute. To avoid excessive interference between wells, the new well should be located as far from any existing Mt. Simon-Hinckley wells as practicable. Taking this into consideration, a location has been proposed which will minimize interference between wells.

This location will also only require installation of about 75 ft. of water main to reach a connection into the existing distribution system.

Designs for all wells drilled into the Mt. Simon-Hinckley aquifer in the New Brighton area are fairly consistent. The surface casing is usually about 30 inches in diameter and the hole then telescopes down (reduction in well diameter) in two steps to 18 inches at total depth. In order to reduce the risks of cross-contamination between aquifers, the Minnesota Department of Health (Water Well Construction Code, Chapter 4725) requires that a liner (casing) be set and grouted in place after the well has penetrated the Prairie du Chien-Jordan aquifer. The hole is then drilled to the bottom of the Eau Claire Formation or the top of the Mt. Simon-Hinckley aquifer (Fig. 4) and another liner is installed and grouted in place. The hole is then drilled to its final depth. All Mt. Simon-Hinckley wells in the New Brighton area are finished as open holes. The strength of the Mt. Simon-Hinckley formation eliminates the need for well screens. The total well depth expected at the proposed location is 1,000 feet.

In terms of the final site remedy, the recommended alternative does not adversely effect any of the potential final remedial actions. A final remedy at this site can be approached by two means, minimization and mitigation of groundwater contamination, and use of an alternative water supply. Although the final remedy for this site has not been determined, it appears likely that some type of response to minimize and mitigate the current groundwater contamination will be part of the final remedy.

Alternative 2 which requires continued pumping of well 7 may have an adverse effect on the final remedy. MPCA had expressed serious concerns regarding the unknown effects of continued pumping of well 7 on the contaminant distribution in the Prairie du Chien-Jordan aquifer. If the present contamination problem in this aquifer is aggravated (e.g., by increased vertical contaminant migration) as a result of pumping well 7, the consequence may be an increase in the cost and the technical difficulty of any final remedies which include groundwater treatment or cleanup.

The recommended alternative will not have any impact on final remedies which include minimization and mitigation of the groundwater contamination because the new well will be finished in the deeper, uncontaminated Mt. Simon-Hinckley aquifer, and not the Prairie du Chien-Jordan aquifer.

Although the new well will not eliminate the contamination of the Prairie du Chien-Jordan aquifer, the operable unit will minimize the threat posed by the contamination until such time as a final remedy is selected by U.S. EPA. An RI/FS is currently underway to determine and evaluate the extent of groundwater contamination. Until the evaluation is completed, it is not technically feasible to develop a cost-effective, long term remedy for the site.

The capital cost of the recommended alternative is estimated to be $ 600,500. The operation and maintenance (O&M) costs are estimated to be $ 22,820 per year. The thirty-year present worth value for the recommended alternative is $ 972,000 at a discount rate of 10 percent. The capital and annual costs of the recommended alternative are summarized in table 5.

It is recommended that the U.S. EPA fund 90% of the O&M costs for a period not to exceed one year after completion of construction. Based on an anticipated agreement with the State of Minnesota, the City of New Brighton will provide the 10% O&M match for the first year and then assume all O&M costs for the life of the project. The U.S. EPA will fund 90% of the capital costs, and based on an anticipated agreement with the State of Minnesota, the City of New Brighton will fund the remaining 10% of capital costs.

STATE AGREEMENTS

Section 104(c)(3) of CERCLA sets forth the State financial responsibilities in remedial actions provided under CERCLA. The State financial responsibilities in the proposed remedial action would include payment or assurance of payment of 10% of the costs of remedial action, and assurance of all future O&M costs of the remedial action.

The EPA anticipates receiving a commitment from the State of Minnesota acknowledging the State's financial obligations in this remedial action. The State anticipates receiving a commitment from the City of New Brighton to assume all O&M costs of the operable unit and to provide the 10% State share of the capital costs of the remedial action.

The O&M costs will be covered under a State Superfund Contract between the State and U.S. EPA at the completion of design of the operable unit.

SCHEDULE*

Approval of Remedial Action
(sign ROD)

Complete Design

Minnesota Pollution Control Agency Board
Meeting-State Superfund Contract approval

Advertise for Competitive Bids

Open Bids

TABLE 5

CAPITAL COSTS - NEW WELL ALTERNATIVE

Item		Cost
1.	Drill Well	260,000[a/][b/][c/]
2.	Pumphouse and Equipment including Controls, Switches, Electrical Connections, Chemical Feed Equipment	160,000[a/]
3.	Installation of 12 inch Water Main (75 feet) ($40/ft)	3,000
	Subtotal	423,000
	Contingency (30%)	126,900
	Construction Engineering (5%)	27,500
	Engineering Design Costs (4%)[d/]	23,100
	TOTAL	600,500

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a/ Costs taken from report prepared by New Brighton City Engineer (ref. No. 15). Independent cost estimates were also obtained from local contractors.

b/ Assumes that air lift pumping can be used to develop the well and that the water produced can be disposed of in a nearby storm drain or sanitary sewer. If the sand produced during well development has to be removed by bailing, drilling costs may increase $50,000 to $100,000.

c/ Assumes no contamination is found during drilling through Hillside and Prairie du Chien-Jordan aquifers and no special drilling, health and safety or disposal methods are required. If the U.S. EPA is the lead agency implementing this alternative, then standard procedures, including the development of Health and Safety Plans, Quality Assurance Plans and Sampling and Analysis Plans may have to be followed to ensure public health and safety. Development and implementation of these plans by qualified field personnel for the duration of the drilling in and above the Hillside and Prairie du Chien-Jordan aquifers (estimated 8-10 months) could result in a significant increase in costs for this alternative.

d/ Assumes New Brighton will do final designs and draw up bid specifications for drilling the new well.

TABLE 5 (Continued)

ANNUAL COSTS - NEW WELL ALTERNATIVE

Item	Cost
1. Labor - 2 hours/week @ $17.50	1,820
2. Power - $120/million gallons[a] x150 million gallons	18,000
3. Treatment - Chemicals for chlorination, fluoridation, and polyphosphate treatment	3,000
ANNUAL O&M	22,820

4. Annualized Equipment Replacement Costs (AERC)[b]

5% Rate:	156,000 x 0.065 =	10,140
8 3/8% Rate:	156,000 x 0.092 =	14,350
10% Rate:	156,000 x 0.106 =	16,540

5. Annual Costs (Annual O&M Plus AERC)

At 5%	22,820
	+10,140
	32,960
At 8 3/8%	22,820
	+14,350
	37,170
At 10%	22,820
	+16,540
	39,360

6. Present Worth [c]

Present Worth at 5% =	506,600
Present Worth at 8 3/8% =	404,000
Present Worth at 10% =	371,200

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a/ Power charges were estimated from actual operation costs for wells 10, 11, and 12 for 1985.

b/ Annualized equipment replacement costs were estimated by multiplying the estimated replacement costs by the Capital Recovery Factor (CRF)

TABLE 5 (Continued)

$$CRF = \frac{i(1 + 1)^n}{(1 + i)^n - 1}$$

n =	30 years
i = 0.05, CRF =	0.065
i = 0.08375, CRF =	0.092
i = 0.10, CRF =	0.106

Equipment Replacement Costs Throughout Project Life

a.	Pump bowls once every 6 years (20,000)(4) (1 billion gallons pumped)	80,000
b.	Pump motor every 15 years	30,000
c.	Chemical feed equipment once every 10 years (10,000)(2)	20,000
d.	Contingency (20%)	26,000
	TOTAL	156,000

c/ Annual costs multiplied by Present Worth Factor (PWF)

$$PWF = \frac{(1 + i)^n - 1}{i(1 + i)^n}$$

n =	30 years
i = 0.05, PWF =	15.37
i = 0.08375, PWF =	10.87
i = 0.10, PWF =	9.43

Contract Award

Notice to Proceed

Estimated Construction Period

Construction Complete

* The Schedule is contingent on the availability of funding by August 1, 1986.

FUTURE ACTIONS

The MPCA is continuing its comprehensive RI/FS for the site. MPCA has already completed a preliminary remedial investigation characterizing the site, major migration pathways, and preliminary identification of significant sources. MPCA is planning to complete the remaining tasks of the comprehensive RI/FS in 1987 in order to evaluate potential final remedial action(s). The feasibility study will recommend the most cost-effective remedial action(s) for the site.

ATTACHMENT 1

ENFORCEMENT

Past Federal and State enforcement activities have focused on up to twelve identified potentially responsible parties (PRPs). Each individual PRP had some involvement at either of the identified potential contamination source areas: the Twin Cities Army Ammunition Plant (TCAAP) or the Butcher Spur/Trio Solvents/Northwest Petroleum Refinery location.

In 1983 and 1984, the EPA issued notice letters to these PRPs requesting participation in the conduct of the three Initial Remedial Measures (IRMs) (see site history section) and the comprehensive regional remedial investigation/feasibility study (RI/FS) for the New Brighton/Arden Hills/ St. Anthony study area. None of the PRPs was willing to undertake or participate in any of the IRMs or studies which EPA had requested. Therefore, EPA and MPCA proceeded with funding and undertaking of these remedial activities.

Preliminary results of the state-lead comprehensive regional RI/FS indicate that the TCAAP is a major source of groundwater contamination in the study area. Based on these results, in January, 1986, the EPA offered the U.S. Army/Department of Defense (DOD) the opportunity to participatc in the regional RI/FS and in the TCAAP force main study.

The Army/DOD has refused to undertake work outside of the base fence line and the "triangle" area (the area directly southwest of the TCAAP, bounded by highways 96, 10 and 8) (see Fig. 2).

Based on the facts that: 1) the Army/DOD has not agreed to do work beyond the base fence line and the "triangle" area and, 2) all previous efforts to obtain other PRP action have been unsuccessful, it was determined that issuance of notice letters to PRPs to conduct this latest operable unit would not serve any useful purpose. Therefore, additional notice letters have not been issued.

(ATTACHMENT 2)

COMMUNITY RELATIONS RESPONSIVENESS SUMMARY
NEW BRIGHTON WELL 7
NEW BRIGHTON, MINNESOTA

INTRODUCTION

This "Community Relations Responsiveness Summary" documents citizen reactions and concerns raised in reference to the Phased Feasibility Study (PFS) for an operable unit for New Brighton well 7, New Brighton, Minnesota. It also documents, for the public record, the United States Environmental Protection Agency's (U.S. EPA) response to the comments presented during the public comment period on the PFS.

The U.S. EPA conducted the PFS to evaluate an operable unit for an alternative water supply for New Brighton well 7. The PFS was completed on May 5, 1986, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601 et seq., and in accordance with the National Contingency Plan (NCP), 40 CFR Part 300. The U.S. EPA recommended that construction of a new well into the Mt. Simon-Hinckley aquifer was the appropriate operable unit for New Brighton well 7.

BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

Residents and locally elected officals have maintained a constant and serious interest in the Superfund activities at this site. Community relations has been a cooperative effort with the EPA funding the Minnesota Pollution Control Agency (MPCA) to conduct the majority of the community relations work. EPA community relations staff participates in the Twin Cities Army Ammunition Plant (TCAAP) public affairs steering committee. Other participants in this committee are staff from the MPCA, the U.S. Army, Honeywell Inc., and Federal Cartridge Corporation.

The public has been kept informed of the activities at this site by various means. Three public meetings have been held between the time contamination was first detected in New Brighton (June, 1981) and the June 12, 1986 public meeting for the PFS. The MPCA regularly attends the monthly meetings of the New Brighton Environmental Quality Advisory Commission. The 1984 and 1985 winter editions of the New Brighton newsletter, which every New Brighton household receives, carried fact sheets updating information regarding the site.

The concerns expressed by the citizens are e[illegible]ally divided between health and financial issues, the latter mani[illegible]ted in a lawsuit filed by the City and local citizens to recover the City's costs associated with replacing its water supply system. Media interest regarding this site has remained very constant.

CONCERNS RAISED DURING THE COMMENT PERIOD

The public comment period to review the PFS and recommended alternative was opened on May 12, 1986. In compliance with CERCLA, a public meeting was held in New Brighton on May 12, 1986. The results of the PFS were presented and questions about the findings answered. The meeting was attended by approximately 35 people, consisting of interested members of the public, the press, and state and local officials. Comments about the recommended alternative were duly recorded.

Comments

During the public comment period, six comments--two written and four oral at the public meeting--were received by the U.S. EPA. The public comment period closed on June 2, 1986.

Comment:

State Representative David Knuth wanted EPA to be aware of the harsh impact the groundwater contamination and the legal battle with the U.S. Army has had on the City of New Brighton's individual taxpayers and water users ($13 million spent to replace the water system balanced against an annual budget of $3 million). He is glad to be working in partnership with EPA and the MPCA. He supports the new deep well alternative because it provides a safety margin for the New Brighton water system without creating an air emissions problem (in reference to the air stripper alternative). He is committed to working towards resolving New Brighton's problems regarding this site and supports actions such as the Minnesota Attorney General's "intent to sue" (the Army) on New Brighton's behalf. He also urges the congressional delegation to reauthorize Superfund.

Response:

The U.S. EPA acknowledges the comments and the support of Representative Knuth.

Comment:

State Senator Steven Novak wished to reiterate all of Representative Knuth's statement and in addition would like all parties involved to work in a coordinated manner.

Response:

The U.S. EPA acknowledges the comments and the support of Senator Novak.

Comment:

Mayor Robert Benke is pleased to confirm the technical decision and judgement regarding the recommended alternative. He is concerned with the public perceptions regarding the safety of New Brighton water. With regards to restoring New Brighton's water system to its pre-contamination state, he stressed that quality was as important as quantity. He states that any level of contamination in the drinking water is unacceptable. He reiterated the other commentators support for Superfund reauthorization.

Response:

The U.S. EPA acknowledges the comments and the support of Mayor Benke.

Comment:

Ms. Phyllis Reha, chairperson of the New Brighton Environmental Quality Commission (advisory group for the city council), stated that the commission reviewed the PFS. She supports the new deep well alternative. She stated that the air stripping alternative was unacceptable because well 7 was located in a park very close to residences, therefore, there would be concerns regarding noise levels and release of low levels of contamination into the air from the stripper.

Response:

U.S. EPA acknowledges the comments and support of Ms. Reha.

Comment:

The Ramsey County Public Health Department agrees that the recommended alternative should be either a new Mt. Simon-Hinckley well or air stripping of well 7. They also state that the new well alternative appears to have the fewest problems. They share the Minnesota Department of Natural Resources' (MDNR) concern (as stated in the PFS) that should the demand for water increase greatly, the Mt. Simon-Hinckley aquifer may not have sufficient water to satisfy demand. They state that if a substantial amount of additional water is going to be needed over the long term, more than one alternative needs to be considered, including possible air stripping of well 7.

Response:

The U.S. EPA acknowledges the support from the Ramsey County Public Health Department. We share the Health Department's concern regarding the Mt. Simon-Hinckley aquifer and agree, in principle, with the suggestion to keep well 7 operational for possible future use, if needed. However, it is not within our authority to order maintenance or abandonment of municipal wells which have been taken out of service.

Comment:

The Minnesota Pollution Control Agency (MPCA) concurs with the recommended alternative. They believe the air stripper alternative was appropriately rejected based on the concern regarding the currently unknown effects of continued pumping of well 7 on the contaminant distribution in the aquifer, the numerous community concerns, and the comparable costs of a new well. MPCA made several additional comments if the recommended new well alternative is finalized by the EPA. The comments are listed below:

1. As stated previously, the MPCA will not be in a position, because of limited funding and conflicting priorities, to provide financial assistance for remedial design, capital and operation and maintenance costs for the new well. It is our understanding that without federal Superfund dollars currently being available, the City of New Brighton will fund, at least temporarily, all the costs associated with the new well.

2. MPCA staff recommend that if the new well is installed, existing well 7 be kept operational for MPCA monitoring purposes and possible future response action use.

3. MPCA staff recommend that if the new well is installed, the City of New Brighton and the MDNR coordinate efforts to discuss and, if necessary, design and implement a community education program aimed at water conservation of the Mt. Simon-Hinckley aquifer. MDNR staff has indicated to us that this coordination effort is an important first step towards the City of New Brighton's acquisition of the necessary water appropriation permit for the proposed new well. They also indicated that if the new well is installed, appropriate monitoring of the well, including daily discharge and water level measurements, should be maintained.

4. The MPCA staff recommend that if the City of New Brighton has any future plans for development of additional wells or treatment of existing standby wells, they work within the conclusions of the regional feasibility study alternatives analysis to be conducted in the next year.

Response:

The U.S. EPA acknowledges the support from the MPCA and look forward to working with the MPCA in a cooperative effort to conduct this operable unit.

With regards to the first additional comment, State financial responsibilities in remedial actions are set forth in Section 104(c)(3) of CERCLA. The State will pay or assure payment of 10 percent of the costs of the remedial action, including all future operation and maintenance costs. The State determines the source of the funds required for the payment of the state share for the remedial action.

With regards to the second additional comment, we agree, in principle, with MPCA's recommendation, however, it is not within our authority to order New Brighton to keep well 7 operational after it has been taken out of service.

Finally, with regards to the last two additional comments, we agree, in principle, with MPCA's (and MDNR's) efforts to manage the groundwater resources efficiently and effectively through conservation and monitoring measures. We will lend our support, where we can, to assist the state agencies in implementing their recommendations, however, the responsibility for development of any programs dealing with aquifer management rest primarily with the state agencies.